



SEQUENCE LISTING

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JUL 29 2002
TECH CENTER 1600/2900

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GRANDI, Guido

<120> POLYPEPTIDE CARRIER PROTEIN

<130> PP00362.102 / 2302-0362

<140> 09/674,183
<141> 2000-11-14

<150> PCT/IB99/00844
<151> 1999-04-27

<150> GB9808932.9
<151> 1998-04-27

<160> 20

<170> PatentIn Ver. 2.1

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Val Asn

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Met Thr Leu Ala

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Ser His Asn Lys
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Tyr Lys Asp Asp Asp Asp Ile Glu Gly Arg Lys Gly Val Ser Ile Asp	
20 25 30	
aaa ttc cgt atc ttc tgc aaa gct aac ccg aaa aaa ggt ctg aaa ttc	144
Lys Phe Arg Ile Phe Cys Lys Ala Asn Pro Lys Lys Gly Leu Lys Phe	
35 40 45	
atc atc aaa cgt tac acc ccg aac aac gaa atc gac tcc aaa ggt atc	192
Ile Ile Lys Arg Tyr Thr Pro Asn Asn Glu Ile Asp Ser Lys Gly Ile	
50 55 60	
cgt gaa gac aac aac atc acc ctg aaa ctg gac cgt tgc aac aac aaa	240
Arg Glu Asp Asn Asn Ile Thr Leu Lys Leu Asp Arg Cys Asn Asn Lys	
65 70 75 80	
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85 90 95	
gtt gtt aac tct aaa ggt ttc aac aac ttc acc gtt tcc ttc tgg ctg	336
Val Val Asn Ser Lys Gly Phe Asn Asn Phe Thr Val Ser Phe Trp Leu	
100 105 110	
cgt gtt ccg aaa gtt tcc gct tcc cac ctg gaa aaa ggt cag tac atc	384
Arg Val Pro Lys Val Ser Ala Ser His Leu Glu Lys Gly Gln Tyr Ile	
115 120 125	
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Lys Ala Asn Ser Lys Phe Ile Gly Ile Thr Glu Lys Gly Gly Ser Pro	
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cat cat acc gcg ctg cgc cag gcg att ctg tgc tgg ggc gaa ctg atg	480
His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met	
145 150 155 160	
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165 170 175	
ctg gcg acc aaa gga tcg ttt ttt ctg ctg acc cgc att ctg acc att	576
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180 185 190	
ccg cag tct ctg gat aaa ggc tat tct ggc ccg ctg aaa gcg gaa att	624
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 35 40 45

Ile Ile Lys Arg Tyr Thr Pro Asn Asn Glu Ile Asp Ser Lys Gly Ile
 50 55 60

Arg Glu Asp Asn Asn Ile Thr Leu Lys Leu Asp Arg Cys Asn Asn Lys
 65 70 75 80

Gly Glu Lys Lys Ile Ala Lys Met Glu Lys Ala Ser Ser Val Phe Asn
 85 90 95

Val Val Asn Ser Lys Gly Phe Asn Asn Phe Thr Val Ser Phe Trp Leu
 100 105 110

Arg Val Pro Lys Val Ser Ala Ser His Leu Glu Lys Gly Gln Tyr Ile
 115 120 125

Lys Ala Asn Ser Lys Phe Ile Gly Ile Thr Glu Lys Gly Gly Ser Pro
 130 135 140

His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met
 145 150 155 160

Thr Leu Ala Lys Gly Ser Pro Lys Tyr Val Lys Gln Asn Thr Leu Lys
 165 170 175

Leu Ala Thr Lys Gly Ser Phe Phe Leu Leu Thr Arg Ile Leu Thr Ile
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Ala Gln Arg Leu Glu Asp Val Lys Gly Ser
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 35 40 45

atc atc aaa cgt tac acc ccg aac aac gaa atc gac tcc aaa ggt atc 192
 Ile Ile Lys Arg Tyr Thr Pro Asn Asn Glu Ile Asp Ser Lys Gly Ile
 50 55 60

cgt gaa gac aac aac atc acc ctg aaa ctg gac cgt tgc aac aac aaa 240
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 65 70 75 80

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 Gly Glu Lys Lys Ile Ala Lys Met Glu Lys Ala Ser Ser Val Phe Asn
 85 90 95

gtt gtt aac tct aaa ggt ttc aac aac ttc acc gtt tcc ttc tgg ctg 336
 Val Val Asn Ser Lys Gly Phe Asn Asn Phe Thr Val Ser Phe Trp Leu
 100 105 110

cgt gtt ccg aaa gtt tcc gct tcc cac ctg gaa aaa ggt cag tac atc 384
 Arg Val Pro Lys Val Ser Ala Ser His Leu Glu Lys Gly Gln Tyr Ile
 115 120 125

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 65 70 75 80
 Gly Glu Lys Lys Ile Ala Lys Met Glu Lys Ala Ser Ser Val Phe Asn
 85 90 95
 Val Val Asn Ser Lys Gly Phe Asn Asn Phe Thr Val Ser Phe Trp Leu
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 20 25 30
 aaa ttc cgt atc ttc tgc aaa gct aac ccg aaa aaa ggt ctg aaa ttc 144
 Lys Phe Arg Ile Phe Cys Lys Ala Asn Pro Lys Lys Gly Leu Lys Phe
 35 40 45
 atc atc aaa cgt tac acc ccg aac aac gaa atc gac tcc aaa ggt atc 192
 Ile Ile Lys Arg Tyr Thr Pro Asn Asn Glu Ile Asp Ser Lys Gly Ile
 50 55 60
 cgt gaa gac aac aac atc acc ctg aaa ctg gac cgt tgc aac aac aaa 240
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 65 70 75 80

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Val Val Asn Ser Lys Gly Phe Asn Asn Phe Thr Val Ser Phe Trp Leu	
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cgt gtt ccg aaa gtt tcc gct tcc cac ctg gaa aaa ggt cag tac atc	384
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Lys Ala Asn Ser Lys Phe Ile Gly Ile Thr Glu Lys Gly Gly Ser Pro	
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His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met	
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acc ctg gcg aaa gga tct ccg aaa tat gtg aaa cag aac acc ctg aaa	528
Thr Leu Ala Lys Gly Ser Pro Lys Tyr Val Lys Gln Asn Thr Leu Lys	
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Leu Ala Thr Lys Gly Ser Phe Phe Leu Leu Thr Arg Ile Leu Thr Ile	
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ccg cag tct ctg gat aaa ggc tat tct ggc ccg ctg aaa gcg gaa att	624
Pro Gln Ser Leu Asp Lys Gly Tyr Ser Gly Pro Leu Lys Ala Glu Ile	
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Arg Ile Phe Cys Lys Ala Asn Pro Lys Lys Gly Leu Lys Phe Ile Ile	
225 230 235 240	
aaa cgt tac acc ccg aac aac gaa atc gac tcc aaa ggt atc cgt gaa	768
Lys Arg Tyr Thr Pro Asn Asn Glu Ile Asp Ser Lys Gly Ile Arg Glu	
245 250 255	
gac aac aac atc acc ctg aaa ctg gac cgt tgc aac aac aaa ggt gaa	816
Asp Asn Asn Ile Thr Leu Lys Leu Asp Arg Cys Asn Asn Lys Gly Glu	
260 265 270	
aag aag atc gct aaa atg gaa aaa gct tct tct gtt ttc aac gtt gtt	864
Lys Lys Ile Ala Lys Met Glu Lys Ala Ser Ser Val Phe Asn Val Val	
275 280 285	
aac tct aaa ggt ttc aac aac ttc acc gtt tcc ttc tgg ctg cgt gtt	912
Asn Ser Lys Gly Phe Asn Asn Phe Thr Val Ser Phe Trp Leu Arg Val	

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aac tcc aaa ttc atc ggt atc acc gaa aaa ggt gga tct ccg cat cat			1008
Asn Ser Lys Phe Ile Gly Ile Thr Glu Lys Gly Gly Ser Pro His His			
	325	330	335
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Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met Thr Leu			
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Ala Lys Gly Ser Pro Lys Tyr Val Lys Gln Asn Thr Leu Lys Leu Ala			
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Lys	Phe	Arg	Ile	Phe	Cys	Lys	Ala	Asn	Pro	Lys	Lys	Gly	Leu	Lys	Phe		
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Ile	Ile	Lys	Arg	Tyr	Thr	Pro	Asn	Asn	Glu	Ile	Asp	Ser	Lys	Gly	Ile		
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Gly	Glu	Lys	Lys	Ile	Ala	Lys	Met	Glu	Lys	Ala	Ser	Ser	Val	Phe	Asn		
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Val	Val	Asn	Ser	Lys	Gly	Phe	Asn	Asn	Phe	Thr	Val	Ser	Phe	Trp	Leu		
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Thr	Leu	Ala	Lys	Gly	Ser	Pro	Lys	Tyr	Val	Lys	Gln	Asn	Thr	Leu	Lys	165	170	175	
Leu	Ala	Thr	Lys	Gly	Ser	Phe	Phe	Leu	Leu	Thr	Arg	Ile	Leu	Thr	Ile	180	185	190	
Pro	Gln	Ser	Leu	Asp	Lys	Gly	Tyr	Ser	Gly	Pro	Leu	Lys	Ala	Glu	Ile	195	200	205	
Ala	Gln	Arg	Leu	Glu	Asp	Val	Lys	Gly	Ser	Val	Ser	Ile	Asp	Lys	Phe	210	215	220	
Arg	Ile	Phe	Cys	Lys	Ala	Asn	Pro	Lys	Lys	Gly	Leu	Lys	Phe	Ile	Ile	225	230	235	240
Lys	Arg	Tyr	Thr	Pro	Asn	Asn	Glu	Ile	Asp	Ser	Lys	Gly	Ile	Arg	Glu	245	250	255	
Asp	Asn	Asn	Ile	Thr	Leu	Lys	Leu	Asp	Arg	Cys	Asn	Asn	Lys	Gly	Glu	260	265	270	
Lys	Lys	Ile	Ala	Lys	Met	Glu	Lys	Ala	Ser	Ser	Val	Phe	Asn	Val	Val	275	280	285	
Asn	Ser	Lys	Gly	Phe	Asn	Asn	Phe	Thr	Val	Ser	Phe	Trp	Leu	Arg	Val	290	295	300	
Pro	Lys	Val	Ser	Ala	Ser	His	Leu	Glu	Lys	Gly	Gln	Tyr	Ile	Lys	Ala	305	310	315	320
Asn	Ser	Lys	Phe	Ile	Gly	Ile	Thr	Glu	Lys	Gly	Gly	Ser	Pro	His	His	325	330	335	
Thr	Ala	Leu	Arg	Gln	Ala	Ile	Leu	Cys	Trp	Gly	Glu	Leu	Met	Thr	Leu	340	345	350	
Ala	Lys	Gly	Ser	Pro	Lys	Tyr	Val	Lys	Gln	Asn	Thr	Leu	Lys	Leu	Ala	355	360	365	
Thr	Lys	Gly	Ser	Phe	Phe	Leu	Leu	Thr	Arg	Ile	Leu	Thr	Ile	Pro	Gln	370	375	380	
Ser	Leu	Asp	Lys	Gly	Ser											385	390		

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 Tyr Lys Asp Asp Asp Asp Ile Glu Gly Arg Lys Gly Val Ser Ile Asp
 20 25 30
 aaa ttc cgt atc ttc tgc aaa gct aac ccg aaa aaa ggt ctg aaa ttc 144
 Lys Phe Arg Ile Phe Cys Lys Ala Asn Pro Lys Lys Gly Leu Lys Phe
 35 40 45
 atc atc aaa cgt tac acc ccg aac aac gaa atc gac tcc aaa ggt atc 192
 Ile Ile Lys Arg Tyr Thr Pro Asn Asn Glu Ile Asp Ser Lys Gly Ile
 50 55 60
 cgt gaa gac aac aac atc acc ctg aaa ctg gac cgt tgc aac aac aaa 240
 Arg Glu Asp Asn Asn Ile Thr Leu Lys Leu Asp Arg Cys Asn Asn Lys
 65 70 75 80
 ggt gaa aag aag atc gct aaa atg gaa aaa gct tct tct gtt ttc aac 288
 Gly Glu Lys Lys Ile Ala Lys Met Glu Lys Ala Ser Ser Val Phe Asn
 85 90 95
 gtt gtt aac tct aaa ggt ttc aac aac ttc acc gtt tcc ttc tgg ctg 336
 Val Val Asn Ser Lys Gly Phe Asn Asn Phe Thr Val Ser Phe Trp Leu
 100 105 110
 cgt gtt ccg aaa gtt tcc gct tcc cac ctg gaa aaa ggt cag tac atc 384
 Arg Val Pro Lys Val Ser Ala Ser His Leu Glu Lys Gly Gln Tyr Ile
 115 120 125
 aaa gct aac tcc aaa ttc atc ggt atc acc gaa aaa ggt gga tct ccg 432
 Lys Ala Asn Ser Lys Phe Ile Gly Ile Thr Glu Lys Gly Gly Ser Pro
 130 135 140
 cat cat acc gcg ctg cgc cag gcg att ctg tgc tgg ggc gaa ctg atg 480
 His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met
 145 150 155 160
 acc ctg gcg aaa gga tct ccg aaa tat gtg aaa cag aac acc ctg aaa 528
 Thr Leu Ala Lys Gly Ser Pro Lys Tyr Val Lys Gln Asn Thr Leu Lys
 165 170 175

ctg gcg acc aaa gga tcg ttt ttt ctg ctg acc cgc att ctg acc att 576
 Leu Ala Thr Lys Gly Ser Phe Phe Leu Leu Thr Arg Ile Leu Thr Ile
 180 185 190
 ccg cag tct ctg gat aaa ggc tat tct ggc ccg ctg aaa gcg gaa att 624
 Pro Gln Ser Leu Asp Lys Gly Tyr Ser Gly Pro Leu Lys Ala Glu Ile
 195 200 205
 gcg cag cgc ctg gaa gat gtg aaa gga tct cag ccg tct gtt cag att 672
 Ala Gln Arg Leu Glu Asp Val Lys Gly Ser Gln Pro Ser Val Gln Ile
 210 215 220
 cag gtg tat cag ggt gaa cgt gaa atc gca tct cat aac aaa gga tcc 720
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 Ile Ile Lys Arg Tyr Thr Pro Asn Asn Glu Ile Asp Ser Lys Gly Ile
 50 55 60
 Arg Glu Asp Asn Asn Ile Thr Leu Lys Leu Asp Arg Cys Asn Asn Lys
 65 70 75 80
 Gly Glu Lys Lys Ile Ala Lys Met Glu Lys Ala Ser Ser Val Phe Asn
 85 90 95
 Val Val Asn Ser Lys Gly Phe Asn Asn Phe Thr Val Ser Phe Trp Leu
 100 105 110
 Arg Val Pro Lys Val Ser Ala Ser His Leu Glu Lys Gly Gln Tyr Ile
 115 120 125
 Lys Ala Asn Ser Lys Phe Ile Gly Ile Thr Glu Lys Gly Gly Ser Pro
 130 135 140
 His His Thr Ala Leu Arg Gln Ala Ile Leu Cys Trp Gly Glu Leu Met

145		150		155		160									
Thr	Leu	Ala	Lys	Gly	Ser	Pro	Lys	Tyr	Val	Lys	Gln	Asn	Thr	Leu	Lys
				165					170					175	
Leu	Ala	Thr	Lys	Gly	Ser	Phe	Phe	Leu	Leu	Thr	Arg	Ile	Leu	Thr	Ile
			180					185					190		
Pro	Gln	Ser	Leu	Asp	Lys	Gly	Tyr	Ser	Gly	Pro	Leu	Lys	Ala	Glu	Ile
		195					200					205			
Ala	Gln	Arg	Leu	Glu	Asp	Val	Lys	Gly	Ser	Gln	Pro	Ser	Val	Gln	Ile
	210					215					220				
Gln	Val	Tyr	Gln	Gly	Glu	Arg	Glu	Ile	Ala	Ser	His	Asn	Lys	Gly	Ser
225					230					235					240